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A REINDEER LED TO WATER OBJECTS TO TAKING A DRINK

(See Bulletin No. 1)

HOW TEACHERS MAY OBTAIN THE BULLETINS

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Reindeer: America's Present to the Alaskan Eskimo

IF ALL Christmas presents are not delivered by the morning of December 25th, it is not for lack of reindeer.

In Alaska 175,000 pairs of reindeer are pawing the snow. Perhaps they are eager to be off on delivery service. Perhaps they are uncovering lichen food beneath the snow.

As steeds of Santa Claus the reindeer are cherished myths of childhood. As beasts of burden, food and clothing they have become the saviors of the Alaskan Eskimo, as Carl J. Lomen, pioneer reindeer ranchman, explains in a communication to the National Geographic Society.

"Within a single generation," writes Mr. Lomen, " 'Cupid' and 'Vixen' and 'Comet' and 'Prancer,' those mythological companions of ruddy St. Nick, which spring into action with the very first-remembered syllables of the famous Christmas poem, have become the staple live-stock of the Far Northwest of the American continent.

Infant Mortality Low Among Reindeer

"The first importation, consisting of only 162 reindeer, was landed at Teller, Alaska, on Independence Day, 1892. During that year and the decade following, 1,118 more were imported from Siberia and landed on the shores of Port Clarence Bay.

"From the outset the deer thrived, and, as the number increased, other herds were formed from the mother herd at Teller. The reindeer is not, however, highly prolific. The female deer usually gives birth to but one fawn a year, and if there are twins, one (or both) of the young is likely to die.

"The rapid increase is due to the remarkable hardihood of the fawns, which only a few hours after birth are strong and fleet of foot. The contrast between the self-reliant reindeer fawn and the weak, knobby-kneed colt or calf is striking and has much to do with the tendency of reindeer herds to increase rapidly in spite of a low birth rate. As the social worker would say, the infant mortality is slight.

"It has been estimated that there are 200,000 square miles of dry, coral-like moss in Alaska—enough grazing land for millions of deer. This class of pasturage is suitable for no other animal except, it may be, the musk-ox and the caribou; hence these thousands of square miles of Arctic Alaska, were it not for the reindeer, would prove practically valueless and could not be permanently inhabited.

"Mosquitoes Make the Best Herders In Summer"

"There is only one drawback to this combination; inevitably the reindeer seek the coast in summer, to escape the swarms of mosquitoes and to lick up the salt deposited by the ocean waters. The Lapps have a saying that 'mosquitoes make the best herders in summer time.'

"The Bureau of Education, acting under the Department of the Interior, first introduced the reindeer into Alaska, not as a live-stock proposition, but primarily to assist the Eskimo (who, like the Indian, is the ward of the Interior Department), and the industry has been developed by that Department.

"The Eskimos own approximately 70 per cent of all the deer in Alaska. When the white man began to hunt the whale, the walrus, and the seal, in the

UMI

© *Photograph from Armando Pero*

THE CHRIST OF THE ANDES

According to news dispatches Herbert Hoover, President-Elect, plans to pause in his trip by rail across the Andes in order to visit the Christ of the Andes on the pass of Uspallata, more than 12,000 feet above the sea. The monument was erected by the joint efforts of Argentinians and Chileans. An inscription beneath the figure reads: "Sooner shall these mountains crumble into dust than the people of Argentina and Chile break the peace which they have sworn to maintain at the feet of Christ the Redeemer" (See Bulletin No. 2).

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Chile: Where the President-Elect Begins His Land Journey

MR. HOOVER will see something of Chile. He lands at Valparaiso, journeys to Santiago, the capital, and there takes the train which goes up and over the Andes.

To see all of Chile requires a long trip on the longitudinal railway which begins at the north end and runs 1,600 miles directly south through this narrow, "hall carpet" country. By such a ride one can see Chile from its beginning, the dreary desert, to its dropping off place, on the wooded shore of the Gulf of Ancud.

Few, save the Chileans themselves, make this comprehensive journey, from the rainless region of the north to the rich agricultural heart of the country, and on through the magnificent forest and river lands, long held by the valiant Araucanian Indians, to the enchanting mountain and lake region famous for its beauty.

A Desert Where Once a Tropical Forest Grew

The longitudinal journey's beginning is at Pisagua, a port north of Antofagasta. Arica, still farther north in disputed territory, is not yet connected with the Chilean railroad system, being beyond the nitrate zone.

It takes a drab pencil to draw a picture of the country crossed the first two days out from Antofagasta. One looks in vain on the monotonous, treeless plain for so much as a cactus plant. The route lies too far inland to glimpse the restless, blue Pacific. To the east bleak, gray hills shut off the snow-crowned Andes. This stupendous range, whose jagged peaks soar skyward, has created the barren waste by wringing all the moisture out of the trade-winds from the east. Before the Andes rose to their present height, this desert was a tropical forest millions of years ago.

Near the railroad the traveler sees deeply furrowed patches of white earth resembling old salt deposits. These mark the sites of former nitrate workings. Nitrate of soda, Chile's chief source of revenue, of which the country has virtually a world monopoly, is obtained from the rough rock known locally as *caliche*. It is dug or blasted from the earth, in some places lying near the surface; in others 20 to 30 feet below ground. The nitrate deposits lie from 15 to 90 miles inland from the coast, at an altitude varying from a little over 3,000 to 13,000 feet.

People of Valparaiso Go Home From Work in an Elevator

As one continues south from Copiapo, little by little the desert flora grows from tufts of grass and stunted bush to tall algarobas and cacti of many varieties, one with a big red bloom. At Vallenar the railroad enters a wide, irrigated valley, emerald green with alfalfa, and vines in season, heavy with luscious white grapes.

For a century and a half Coquimbo, next city of importance, has been famed as a mining center. One of our North American steel companies has developed a remarkable iron property in the gigantic Tofo mines, where ore taken from a mountain of iron by steam-shovels is conveyed by an electrically operated railroad to the pier and loaded directly, through chutes, into specially constructed steamers.

The Aconcagua Valley is Chile's gem, a lovely vale where a merry little river, dashing down from crystalline heights, is bordered by velvety green hills. This is the rich agricultural region which stretches far south to the Bio-Bio River.

Bering Sea and Arctic Ocean, he became a competitor of the Eskimo. The white man's facilities for bagging this game soon put the Eskimo at a hopeless disadvantage. Fortunately the government awakened to the necessity of providing these wards with a means of livelihood in lieu of what they had lost.

"Dr. Sheldon Jackson was the pioneer in realizing the possibilities of the reindeer industry for this purpose. He appealed to Congress, but did not await its action. The first reindeer brought to Alaska were purchased with funds raised by him through private subscription. The government in 1892 appropriated $6,000, the first of a series of annual appropriations made to continue the importations.

"Thus it came about that the Bureau of Education first fostered the reindeer industry as a means of vocational education for 20,000 Eskimos who otherwise would have had to be supported or left to starve."

Bulletin No. 1, December 17, 1928.

© Photograph by Lomen Brothers

REINDEER ARE OCCASIONALLY USED AS STEEDS IN ALASKA

A number of Lapps were induced to settle in Alaska at the same time that the first reindeer were imported. They taught the Eskimos how to care for the herds and how to handle the deer as draught animals. It is estimated that 350,000 reindeer thrive today in Alaska.

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The River Shannon Turned Into a Lake

THIS is a modern Irish fairy story.

"Where the River Shannon Flows" a big, white concrete dam has been planted squarely across the stream. Some time next year the waters will begin to rise and "Lake Shannon" will spread out against green banks. Then Irish poets will have new beauties to sing of and Irish industry will have 90,000 horsepower to turn innumerable wheels and light electric lights where kerosene and candles now burn.

The Shannon a Dividing Line in Ireland

The Shannon is one of the most important physical features of Ireland. It has always been a dividing line, separating eastern Ireland, which was most affected by incursions of Danes and English, from western Ireland, which is Irish through and through. In western Ireland Gaelic is still the language of a large part of the people. The river rises at the foot of Mount Cuilcagh not far from Donegal Bay in northwestern Ireland, and looping somewhat to the southeast, and then to the southwest, practically incloses the province of Connaught, which is about the size of Wales.

In its course, the Shannon passes through a number of beautiful natural lakes or *loughs*, where some of the Emerald Isle's most exquisite scenery is to be found. Among the larger lakes strung thus like jewels on the thread of the River Shannon are Lough Allen, near the source, Lough Boderg, Lough Forbes, Lough Ree and Lough Derg. In addition there are innumerable lakelets lying between the larger bodies of water.

Limerick Near Location of Big Dam

The dam is being constructed near Limerick, below Lough Derg, so that the various lakes will serve as reservoirs. Of the 150 feet of fall which the river has throughout its course, the dam will take advantage of 96 feet.

The River Shannon has been the subject of both song and verse, and history records more than one famous battle fought on its banks. The portion just above Limerick is probably the most beautiful; and it has yet another bid to fame. Because of the fine salmon and trout fishing which this stretch of the stream furnishes, it is known as "the Utopia of Irish Anglers."

Bulletin No. 3, December 17, 1928.

NOTE: For further information on the development of modern Ireland see "Ireland, The Rock Whence I Was Hewn," by Donn Byrne, *National Geographic Magazine*, March, 1927.

This and adjoining valleys, the geologists tell us, are the remains of ancient fjords like those we still see in far southern Chile.

Where the coast range of the Andes dips its feet in the sea Valparaiso, South America's chief port on the Pacific, rises like an amphitheater from the crescent shore. This city somehow does not seem typically South American or even distinctly Chilean. There are so many Britishers and Chileans of British blood here that the place has much in common with British colonial ports. Like Hongkong, Valparaiso is formed of a few level streets on land in part reclaimed from the sea, and a residential section on the hills above. Elevators on inclined planes, known locally as "ascensors," connect the streets by the shore with those on the heights.

Across the Bio-Bio to the Chilean "Frontera"

The situation of Santiago, Chile's capital, nearly 1,800 feet above the sea, is most attractive. It ranks in beauty among South American cities second only after Rio de Janeiro and equals La Paz, Arequipa, and Caracas. Its most notable physical feature is Santa Lucia, a singular hill of volcanic origin in the heart of the city. This once barren knoll, 400 feet above the plain, has been transformed into a hanging garden. Over its treetops one looks down on the great city of half a million souls—a city of low buildings and checker-board streets set in emerald meadows and encompassed by snowy mountains.

South of Santiago, "the Longitudinal" express passes through the long agricultural valley between the Coast Range and the Andes. Wheat-fields and vineyards border the track. Stately rows of Lombardy poplars and eucalyptus inclose the fields. Few foreigners stop between Santiago and Conception, a day or a night journey on the train. Concepcion, Chile's third city in importance, is on the north shore of the Bio-Bio River and not far from the sea.

The Bio-Bio, largest river on the west coast of South America, was long the dividing line between civilized Spanish Chile and the territory of the indomitable Araucanian Indians, who for more than three centuries defied their country's invaders. As a frontier post and the seat of innumerable earthquakes, Concepcion has known turbulent days.

Southward lie the ports of Coronel and Lota, where vast coal mines extend under the sea. Chile is the principal coal-producing country of South America, with an estimated coal reserve of two billion tons.

When one crosses the Bio-Bio River he enters that romantic territory known to the Chileans as the *Frontera*. Within the memory of the living, white men might not enter this region of great forests and noble rivers. It was the domain of the Araucanians.

Eighteen Feet of Rain Per Year in Southern Chile

If the north of Chile has "gone dry," the south is certainly wet. Vapor-laden winds from the Pacific meet winter-chilled earth. The winds, ascending the Andes, pass through Nature's wringer and are hurled back in torrents. Annual precipitation must be gauged in feet instead of inches. Sixteen feet, even eighteen feet, farther south, is the official record.

There are now about 300,000 people of German stock in Southern Chile, mostly between Valdivia and Puerto Montt. The towns of La Union and Osorno show marked German influence, while Puerto Varas, on the shore of lovely Lake Llanquihue, is a typical German village. As dairymen, fruit-growers, and lumbermen, these Teuton colonists are most successful. Almost every family takes summer boarders. Each place has its waddling geese and its cool, trellised beer-garden.

From Puerto Varas, "the Longitudinal" continues on to Puerto Montt, on the Gulf of Ancud, where it ends. Punta Arenas, at the end of Chile, is reached after the traveler, forsaking railroad for coastal steamer, sails past many miles of unexplored wilderness.

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Tabulating the Tinkling of the Bells, Bells, Bells

CHRISTMAS Day without tolling bells!

New Year's midnight without wildly ringing bells!

Both are unthinkable. Civilization, growing older, will ever be young enough to celebrate with bells.

Bells are so commonly used today that their importance in ancient and medieval times is oft forgotten. The Chinese used bells in their worship 5,000 years ago. The robes of Jewish priests in Old Testament times tinkled with tiny bells. The Romans adorned their horses with them, and silver bells were coveted Roman prizes.

In modern times the civilized world jingles constantly with bells. If the telephone companies "plugged in" on every telephone in the United States more than 36,000,000 bells would ring at one time. Nearly every residence has a doorbell. Most of them have alarm clocks with bells and many have dinner bells. Life on the sea is regulated by bells and on land locomotive bells are familiar sounds. When secular bells rest, church bells toll the hours of religious services.

Moscow Has the Largest Bell in Actual Use

Christian churches did not use bells until the fifth or sixth century. The first church bells were made in Campania, Italy, and used by churches in Rome. After a little more than a century their popularity influenced a Pope to ordain that every church should have one.

Marco Polo tells about a large bell suspended in the center of Peking from a lofty building, but early European bells were tiny compared with the modern giants. Many of the hand bells in general use were made of hammered iron, riveted together and shaped like the so-called cowbell.

Bells grew in size with the centuries. When a king presented a bell weighing slightly more than a ton to the Church of Orleans in the eleventh century, the people looked upon it as a marvel of the age. Seven centuries later Russia, the "Land of Bells," cast the famous 200-ton Moscow Tsar Bell (see illustration following bulletin). Moscow also claims the largest bell in actual use, a bell which weighs 128 tons. Upper Burma has one weighing 80 tons. The barrel-shaped bell at Kyoto, Japan, weighs 63 tons, while a bell at Peiping (Peking) weighs only 10 pounds less. Bells in Rouen and Vienna each weigh 20 tons.

The United States has the highest swung bell. It is attached to the clock mechanism in the Metropolitan Tower, New York City, 700 feet above the street. Gotham also has one of the world's two largest carillons. It uses 53 bells. But no bell is more famous than the old cracked Liberty Bell in Independence Hall, Philadelphia.

Old England Lived and Worked by Bells

The people of England almost lived by the ringing of bells a few centuries ago. "Vestry bells" summoned the church vestry. "Mote bells" announced village meetings. "Harvest bells" called workers to the field. "Oven bells" noted the hour when the ovens of the Lord of the Manor were ready to bake bread. "Market bells" signalled the opening of the markets. There were especial bell ringings when children of notables were born. "Passing bells" are still rung in England after the death of a citizen.

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BUILDING OF AN ELECTRIC POWER PLANT ON THE RIVER SHANNON WILL TEND TO MAKE HOME SPINNING A LOST ART

As mother spins the wool into yarn on the old-fashioned spinning wheel, Mary winds it from the spindle into a ball, from which it will be taken later to be woven or knit into weather-defying homemade garments. Mary is using her toes to hold the spindle, thus leaving both hands free to wind the yarn on the ball (See Bulletin No. 3).

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Three Sports That Holland Gave the World

A PAIR of skates for Tom; a toy yacht for Jimmy; a matched set of golf clubs for father.

These three presents, which will be given in many homes this Christmas, serve three sports which Holland has contributed to civilization.

All three of the sport terms are direct importations from the Dutch language; golf comes from *kolf* meaning a club; yacht from *jacht* which originally referred to hunting or the chase; skate from *schaat* meaning skate.

Scotch Gave Golf The Finishing Touches

Although the Scotch receive credit for shaping golf into the game now played, the Dutch are held responsible for its origin. Certain etchings have been ferreted out of the art treasures of the nation which picture the ancient *kolf* players on the "links." So we know that in 1675 the well-equipped Dutch golfer went forth swathed in a mantle like a Roman toga, that he carried a muff, and wore skates, because *kolf* was an ice game. In place of a golf bag he carried a sword in a scabbard. Yet he is not entirely an unfamiliar figure as he stands boldly in a typical visored cap, the same baggy knickers, the golf socks and even the identical, snappy knee tassels which decorate the fastidious golfer today.

One stick was enough for the old Dutch player; it was large and like a hockey stick. The golf balls were large, too, and it has been found that although the Dutch earned the reputation of making the best golf balls, the Scotch, even in those days, were producing clubs of such quality that the Netherlanders sent across the North Sea for them.

The chief divergence between *kolf* and golf is that in *kolf* the player aimed to hit a stake set in the ice instead of trying to sink a putt in a cup. Other pictures have been found, however, which show that the Dutch themselves transferred the game to land and substituted a cup for a stake.

Dutch Probably First to Substitute Iron for Bone Skates

The sport of yachting originated, authorities consider, on the Zuider Zee, that shallow salt arm of the ocean which, quite appropriately, was the scene of the Olympic yacht races. The sport was started by certain old sea captains who tried to retire and couldn't. Veteran captains grown so rich on the sea trade with the Indies and America that they lived at ease in Amsterdam, compromised with the call of the sea by sailing to meet the incoming merchant fleets.

When word came that the ships were at the entrance to the Zuider Zee retired captains would sail out to meet them in small, luxurious ships designed like miniature galleons. Sailings to meet the fleet soon became races, so the old captains gradually adapted their little galleons to get greater speed. One of these *jachts* was presented by Holland to Charles II of England who raced it on the Thames and thus the sport became implanted in Britain.

While it is true that no man can say who started skating, the Dutch very early developed the art. Probably they were among the first to substitute iron for bone skates and with this innovation the real history of skating begins.

"Tour of 11 Towns" is Dutch Skating Marathon

To a Netherlander a pair of skates was, and, in a great measure, still is as necessary as an automobile to an American. In winter when the canals freeze,

Bell ringers usually refer to a bell as "she," but the famous bells of England bear masculine names. Great Paul, a 16½-ton bell, swings in a tower atop St. Paul's in London. It is England's largest swinging bell. Great Peter at Yorkminster is a 12½-ton bell. There is a Great Tom at Lincoln and another at Oxford University, while the Westminster Abbey bell is affectionately called Big Ben. The old English bells were believed to possess personalities. When they were moved from one town to another they were taken down with much ceremony and great crowds lined the routes over which they were hauled. More ceremonies took place when they were rehung.

The great modern carillons are the outcome of rivalry among the cities of the Netherlands and Belgium. In the fifteenth century when time pieces were rare and the people depended upon the town clock for the time of day or night, each town sought to surpass others by adding more and better bells, until brief melodies could be played. Then came the keyboard and pedal console much like that of an organ, the playing of which has become an art. The Netherlands and Belgium, in which more than two-thirds of the world's 180 carillons are located, have established government schools for carillon players. Josef Denyn of Belgium is called the Paderewski of the carillon. Unfortunately bell metal (copper and tin) makes good cannon metal, and eleven carillons were destroyed during the World War.

Bulletin No. 4, December 17, 1928.

© *Photograph by H. T. Kelsh*

THE LARGEST BELL IN THE WORLD

The quantities of water used in 1737 to put out a fire which caught the scaffolding holding the huge Tsar Bell in the Kremlin caused it to crack badly, letting a large piece fall out. The bell is 66 feet in circumference, 26 feet high, and weighs 200 tons. The chunk broken out of it rests on the ground in front as if waiting for somebody to lift it back in place.

the Dutchman skates to work, he tours the country on skates, his servants go to market on skates, the mail in some places is delivered by postmen on skates.

So it is only natural that skates should promote the sport of skating as bicycles and automobiles have promoted bicycle and automobile racing. The Dutch soon became outstanding performers in figure skating, now one of the Olympic sports. They became famous also for their long-distance journeys in which they sped on skates from one end of the kingdom to the other.

The Holland skating marathon and big event of the season is known as the "tour of 11 towns" over a route of 125 miles which must be covered by skaters within 12 hours. No rests are allowed.

Bulletin No. 5, December 17, 1928.

NOTE: For further information on Sports see "The Geography of Games," *National Geographic Magazine*, August, 1919.

© *Photograph by Royal Dutch Air Service*

A YACHT RACE WHERE YACHTING ORIGINATED

These sailboats are racing near Alkmaar, north of Amsterdam, Netherlands. Yachting had its origin in the practice of retired Dutch sea captains sailing out to meet the East Indies fleet when it arrived at the entrance to the Zuider Zee. Dikes protecting the land can be seen in the upper left-hand corner of this illustration.